

REMARKS

Claims 1, 4 to 7, 12, 15 and 16 are all the claims pending in the application, prior to the present Amendment.

Claims 1, 5 to 7 and 16 have been rejected under 35 U.S.C. § 102(b) as anticipated by U.S. Patent 6,410,640 to Fukunaga et al as evidenced by U.S. Patent 4,960,844 to Singh.

Applicants submit that Fukunaga et al and Singh do not disclose the subject matter of the amended claims of the present application and, accordingly, request withdrawal of this rejection.

The currently pending claim 1 includes different two embodiments. One is a curable composition comprising the organic polymer (A) and a tin carboxylate (B1). The other is a curable composition comprising the organic polymer (A) and a carboxylic acid (B2). To focus on the main point of argument, applicants have amended claim 1 so that component (B) is a tin carboxylate. In addition, applicants have amended claim 4 to place it in independent form to direct it to the embodiment wherein the curable composition contains the carboxylic acid (B2).

Thus, the present invention as set forth in claim 1 as amended is directed to a curable composition comprising an organic polymer (A) which has on average 1.1 to 50 groups per one molecule thereof each represented by general formula (1), representing a urethane bond, and has one or more silicon-containing functional groups capable of cross-linking by forming siloxane bonds and a tin carboxylate (B) in which the carbon atom adjacent to the carbonyl group of the tin carboxylate (B) is a quaternary carbon atom.

Applicants submit that the invention of amended claim 1 is inventive over Fukunaga et al because the present is a selective invention over the teachings of Fukunaga et al.

In particular, claim 1 as amended above recites a curable composition comprising a specific organic polymer (A) and a specific tin carboxylate (B). The tin carboxylate has a quaternary carbon atom adjacent to the carbonyl group. The presence of such a quaternary carbon atom provides an unexpected effect of the invention set forth in claim 1.

Thus, the present specification states that a metal carboxylate in which the carbon atom adjacent to the carbonyl group is a quaternary carbon atom is preferable because of rapid curing rate, and lists tin neodecanoate and tin pivalate, which are tin carboxylates, as examples. See page 29, lines 9 to 12 of the present specification. The rapid curing rate achieved by such a tin carboxylate is demonstrated in the Examples of the present specification. See, for example, Example 5 of the present specification.

On the other hand, Fukunaga et al do not provide any working Example of a curing composition that comprises such a tin carboxylate having a quaternary carbon atom adjacent to the carbonyl group, and contain no discussion that such a tin carboxylate produces an unexpected effect. Of course, the unexpected effect of the invention set forth in claim 1 cannot be obvious from the teachings by Fukunaga et al.

In other words, the inventive concept of the present invention as set forth in claim 1 as amended above is clearly distinct from that of Fukunaga et al. A person of ordinary skill in the art would not recognize the concept or effect of the invention set forth in claim 1 from the teachings of Fukunaga et al.

Further, Fukunaga et al refer to the teachings of Singh as one method for producing component (A).

However, the referred to method of Singh is merely an example among many possible production methods that are mentioned by Fukunaga et al. Fukunaga et al do not disclose that the method of Singh is a preferable one. In fact, the component (A) produced in the working Examples of Fukunaga et al are indeed outside the scope of the present claim 1. Thus, Fukunaga et al do not disclose the combination of the organic polymer (A) and the specific tin carboxylate (B) of claim 1.

The organic polymer (A) recited in claim 1 is, as illustrated in Table 3 of the present specification, a polymer having a specific amount of amido units. A combination of the organic polymer (A) that has a specific structure and a specific tin carboxylate as component (B), provides a rapid curing rate. Such a combination and such an improving effect in curability are not disclosed or suggested by Fukunaga et al or by Singh.

Thus, the present invention as set forth in claim 1 is a selective invention over the teachings of Fukunaga et al.

In view of the above, applicants submit that Fukunaga et al and Singh do not disclose or suggest the subject matter of claim 1 and the claims dependent thereon and, accordingly, request withdrawal of this rejection.

Claims 1, 4, 12 and 15 have been rejected under 35 U.S.C. § 103(a) as obvious over U.S. Patent 6,410,640 to Fukunaga et al as evidenced by U.S. Patent 4,960,844 to Singh, in view of EP 0538881 to Suzuki et al and WO 03/011978 to Okamoto et al, whose English language equivalent is U.S. 7,115,695.

Applicants submit that the cited documents do not disclose or render obvious the subject matter of the present claims, and, accordingly, request withdrawal of this rejection.

Applicants have discussed Fukunaga et al and Singh above and rely on that discussion.

First, with respect to that aspect of the present rejection relating to claim 1 and claims dependent therefrom under 35 U.S.C. § 103(a) as being unpatentable over Fukunaga et al (US 6,410,640) as evidenced by Singh (US 4,960,844) in view of Suzuki et al (EP 0538881) and in further view of Okamoto et al (WO 03/011978), as explained above, the present invention is a selective invention over the teachings of Fukunaga et al.

Suzuki et al and Okamoto et al do not teach the inventive concept of the present invention as set forth in claim 1, either. Suzuki et al and Okamoto et al do not disclose or suggest the use of a tin carboxylate in which the carbon atom adjacent to the carboxyl group is a quaternary carbon atom.

In particular, Okamoto et al disclose the use of various metal carboxylic acid salts that can be used in their invention, but do not disclose the use of tin carboxylates as a catalyst of their invention, as can be clearly seen from the description of the compounds (2) to (12) at column 14, lines 38-57, where Okamoto et al describe the various carboxylic acid metal salts that can be used as component (B) in their invention. See also the description of component (B) of Okamoto et al at column 2, lines 55-60, and claims 1 and 3. Okamoto et al disclose the use of tin octylate as a comparative catalyst, but this catalyst is not a tin carboxylate in which a carbon atom adjacent to the carbonyl group is a quaternary carbon atom.

Accordingly, applicants submit that Okamoto et al do not disclose or render obvious the use of a tin carboxylate in which the carbon atom adjacent to the carboxyl group is a quaternary carbon atom.

Suzuki et al disclose the use of various carboxylic acids, but do not disclose the use of tin carboxylates as a catalyst of their invention. Suzuki et al disclose, at page 2, in the Description of Related Art section of the publication, the use of tin octylate as a catalyst, but this catalyst is not a tin carboxylate in which a carbon atom adjacent to the carbonyl group is a quaternary carbon atom.

Accordingly, applicants submit that Suzuki et al do not disclose or render obvious the use of a tin carboxylate in which the carbon atom adjacent to the carboxyl group is a quaternary carbon atom.

Therefore, even if Suzuki et al and Okamoto et al are considered, a person of ordinary skill in the art would not recognize the concept or effect of the present invention as set forth in claim 1 from the teachings of Fukunaga et al, Singh, Suzuki et al and Okamoto et al. The unexpected effect of the present invention set forth in claim 1, that is, rapid curing rate due to a tin carboxylate having a quaternary carbon atom adjacent to the carbonyl group, cannot be recognized from the cited references.

Thus, the present invention as set forth in claim 1 is not obvious over Fukunaga et al, Singh, Suzuki et al and Okamoto et al. Accordingly, applicants request withdrawal of the outstanding rejection as it relates to claim 1 and the claims dependent thereon.

Turning now to that aspect of the rejection relating to claim 4 and claims dependent therefrom under 35 U.S.C. § 103(a) as being unpatentable over Fukunaga et al (US 6,410,640) as evidenced by Singh (US 4,960,844) in view of Suzuki et al (EP 0538881) and in further view of Okamoto et al (WO 03/011978), applicants submit the following remarks.

The Examiner asserts that claim 4 is rejected under 35 U.S.C. § 103(a).

At first, the Examiner admits, at page 5 of the outstanding Office Action, that “Fukunaga et al does not teach the curable composition in which the component (B) is a carboxylic acid” of the present claim 4.

Then, the Examiner asserts that Suzuki et al teach the use of a carboxylic acid in place of organometallic compounds in curing a specific polymer.

However, the carboxylic acid in claim 4 is a carboxylic acid that has a quaternary carbon atom adjacent to the carbonyl group of the carboxylic acid. Suzuki et al do not teach the use of such a carboxylic acid.

Suzuki et al exemplify various types of carboxylic acids, such as aliphatic monocarboxylic acids, aliphatic dicarboxylic acids, aliphatic polycarboxylic acids, aromatic carboxylic acids and other amino acids. See page 4, lines 24 to 58. These examples do not include any carboxylic acid that has a quaternary carbon atom adjacent to the carbonyl group of the carboxylic acid.

The present specification states that a carboxylic acid in which the carbon atom adjacent to the carbonyl group is a quaternary carbon atom is particularly preferable because of rapid curing rate. See page 35, lines 1 to 5 of the present specification. The rapid curing rate by such a carboxylic acid is demonstrated in the Examples of the present specification.

Thus, a person of ordinary skill in the art cannot expect such an advantages based on a carboxylic acid in which the carbon atom adjacent to the carbonyl group is a quaternary carbon atom from the teachings by Suzuki et al because Suzuki et al do not provide any teaching or suggestion for use of such a carboxylic acid.

The Examiner also states that Okamoto et al teach that “the carboxylic acid from which the metal carboxylate is formed is preferably neodecanoic acid,” and refers to column 15, lines 61 to 65 and column, lines 1 to 8 of the U.S. 7,115,695 to Okamoto et al as support for his position.

Applicants submit, however, that the Examiner has not correctly analyzed the teachings of Okamoto et al.

In particular, the portions of Okamoto et al which the Examiner has referred to are part of a description of component (B) of Okamoto et al which begins at column 14, line 35, where Okamoto et al state that component (B) is a carboxylic acid metal salt. See also, column 2, lines 55-60, column 14, lines 6 to 65 and claims 1 and 5 of Okamoto et al for a description of component (B).

Thus, the various carboxylic acids disclosed at column 15, line 61, to column 16, line 8 of Okamoto et al are examples of the carboxylic acid functionality in such acid metal salts. Okamoto et al do not disclose any free carboxylic acid wherein a carbon atom adjacent to the carbonyl group is a quaternary carbon atom.

Accordingly, Okamoto et al do not teach the use of a **free** carboxylic acid that has a quaternary carbon atom adjacent to the carbonyl group. This is also apparent from the above expression of the Examiner “the carboxylic acid from which the metal carboxylate is formed.” The expression means that a “carboxylic acid” in Okamoto et al is a carboxylic acid residue that is present in the metal carboxylate.

This can be recognized clearly from the description in U.S. 7,115,695 to Okamoto et al, at column 14, lines 35 to 65 which states:

The component (B) contain, as the main ingredient, **carboxylic acid** metal salts represented by the general formulas (2) to (12). . . .

As the carboxylic acid, a C2-40 (including carbonyl carbon) hydrocarbon carboxylic acid group-containing compound can be preferably used”

Further, claim 5 of Okamoto recites “. . . wherein the carboxylic acid metal salt as the component (B) is a metal salt of a carboxylic acid group-containing compound selected from . . . neodecanoic acid”

It is apparent from this claim 5 of Okamoto et al that the disclosure of neodecanoic acid in Okamoto et al is with respect to a metal salt of neodecanoic acid as an example of the component (B), and is not a disclosure of the use a free “carboxylic acid” as required by claim 4 of the present application.

Thus, Okamoto et al do not teach use of a free “carboxylic acid” as recited in claim 4 of the present application.

Applicants note that in the Amendment Under 37 C.F.R. § 1.111 filed on July 15, 2008, applicants explained in detail that Okamoto et al do not disclose the use of a free carboxylic acid as recited in the present claims, but the Examiner has not commented on applicants’ explanation, and has merely repeated his incorrect assertion that Okamoto et al disclose the use of a carboxylic acid that satisfies the recitations of claim 4. Applicants request the Examiner to review the full disclosure of Okamoto et al and the above arguments, and if he disagrees with applicants’ argument that Okamoto et al do not teach the use of a free carboxylic acid as recited in claim 4, to provide detailed reasons why he disagrees.

In summary, as can be seen from the above discussion, Suzuki et al and Okamoto et al do not disclose the use as required by claim 4 of a carboxylic acid that has a quaternary carbon atom adjacent to the carbonyl group.

Accordingly, applicants request withdrawal of the rejection for claim 4 under 35 U.S.C. 103(a) as being unpatentable over Fukunaga et al as evidenced by Singh, in view of Suzuki et al and further view of Okamoto et al.

In view of the above, applicants submit that claims 1, 4, 12 and 15 are patentable over the cited prior art and, accordingly, request withdrawal of this rejection.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

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